

Procedure to move a CMEX in the Collision Hall

This procedure describes the steps that are to be followed in order to move a CMEX in the CDF Collision Hall. Typically, these stands are moved in order to service particular components on the endwall or to open an End Plug.

Due to the weight and cost of the CMEX, it is required that the head of PPD review and approve this procedure.

Approvals:

(CDF Operations Department C0-Head Head)

(Date)

(PPD Head)

(Date)

1.0 Controlled Copies of this procedure.

Two controlled copies of this procedure will exist.

One will be held in the CDF Department Office.

One will be held in the CDF (B-0) Assembly Hall Room 101.

All other copies will be marked, " **INFORMATIONAL COPY ONLY** "

2.0 The Procedure.

The CMX stands shall be moved in accordance with the checklist provided in the next Section. No other procedure is required for this move operation.

3.0 Checklist

The following pages contain the checklist for moving the CMX muon detectors in the CDF Collision Hall. Completed checklists are to be placed in the binder marked "CMX Move Checklists" in the CDF control room.

CMX Move Checklist

The minimum number of personnel required to conduct this operation is two, at least one of which is trained in the procedure and will act as the operator. The second person is there to act as an observer. During the move operation, no other work is to be performed in the immediate area around the equipment being moved.

CMX Stand Being Moved: _____NE _____SE _____NW _____SW IN/OUT

Date of Move Operation:_____

Printed Name of Operator:_____

Printed Name of Observer(s):_____

Opening a CMX Stand

I. Preoperational Inspection

Verify adjacent CMP wall is OPEN

Remove any wooden ramps from behind rails

Verify that floor is free of any debris

Verify that the guide rails are free of any foreign objects and that the two sections are aligned with respect to each other.

Make sure that the hard “stops” are securely bolted to the floor and have not been tampered with. If in doubt, contact the project engineer before proceeding any further

Verify mini-skirt festoon is free to move with CMX arch

Check overhead to make sure there are no interferences

II. Preparation for the Move and the Move itself

Install eye-bolt on back of stand

Install come-along to hook on collision hall wall and to eyebolt mounted on CMX stand

Move stand with come along. – The stand should move easily. If it starts to bind, STOP and check for interferences.

Move the stand SLOWLY – clearances between it and apparatus on central detector is less than 1". Quick movement can cause damage as the stand bounces.

Note: The “out” position is defined by the interference with Silicon racks on the collision hall wall. There should be AT LEAST a 3” gap between the CMX electronics rack and the silicon rack.

III. Secure from Move Operation

Remove come-along and store in corner of collision hall

Closing a CMX Stand

IV. Preoperational Inspection

Verify yellow access grating (for under the detector) is locked in place with proper tag-out lock

Verify that floor is free of any debris

Verify that the guide rails are free of any foreign objects and that the two sections are aligned with respect to each other.

Make sure that the hard “stops” are securely bolted to the floor and have not been tampered with. If in doubt, contact the project engineer before proceeding any further

Verify mini-skirt cable festoon is free to move with CMX arch

Check overhead to make sure there are no interferences

V. Preparation for the Move and the Move itself

Install eye-bolt in front of stand

Install eye-bolt to floor located directly under the beampipe.

Install come-along and chain to connect the two eye-bolts

Move stand with come-along. – The stand should move easily. If it starts to bind, STOP and check for interferences.

Move the stand SLOWLY – clearances between it and apparatus on central detector is less than 1”. Quick movement can cause damage as the stand bounces.

For the west side:

- ☐ Verify key-stone chambers are centered about the beamline center and the two halves are closed together.
- ☐ position someone in a genie to watch for interferences between CMX stand and key-stone chambers

Move the CMX in until it comes in contact with the hard stop.

VI. Secure from Move Operation

Remove come-along and store in corner of collision hall

Remove eye-bolt from floor and reinstall steel plate

4.0 Deviations from the Procedure

None at this time.

The required training for this (CDF-II 407) procedure is in the form of "hands-on" experience gained while participating in an actual CMX move conducted by trained personnel. All personnel participating in this operation must be approved for CDF Supervised Access or CDF Controlled Access.

LIST OF AUTHORIZED TRAINING PERSONNEL FOR THIS PROCEDURE:

Name (Last, First)	I.D.#
Carter, Harry	3236
Voirin, John	4940
Roser, Rob	11910
Lukens, Pat	9382
Moccia, Stefano	12246

Either a procedure practice run led by an authorized trainer or a verbal discussion with an authorized trainer is the only required training. This choice depends on the specific procedure being performed and experience of the trainee.

6.0 Training Materials.

A copy of this procedure

7.0 List of Trained People for this procedure.

The list of trained people for this procedure will exist in written form in the CDF Department copy of this procedure. Only CDF technicians will be trained in the procedure.

Harry Carter
Rob Roser
Pat Lukens
Stefano Moccia
Dervin Allen
Craig Olson
John Voirin

8.0 References and Supporting Documentation.

None at this time.